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Tuesday, December 13, 2005

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050954_JP61-16277_JPN-2-ENG_FINAL.doc

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公開実用 昭和61-16277

③ 日本国特許庁(JP)

⑩ 実用新案出願公開

④ 公開実用新案公報(U)

昭61-16277

⑥ Int.Cl.⁴

B 25 B 13/60
13/12

識別記号

庁内整理番号

7512-3C
7512-3C

⑨ 公開 昭和61年(1986)1月30日

審査請求 有 (全 頁)

⑦ 考案の名称 バイブレンテ

⑪ 実 願 昭59-98986

⑫ 出 願 昭59(1984)6月29日

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明 細 書

1. 考案の名称

パイプレンチ

2. 実用新案登録請求の範囲

A. 上端に上あご部を有し、下部をグリップ部とし、側縁にラック歯が形成された本体。

B. 前記本体の上あご部に対向する下あご部を上端に有し、かつ同本体に回動可能に嵌挿された可動体。

C. 前記可動体の下部一側に、第1のピンによって回動可能に連結された連結体。

D. 前記連結体の上部他側に、第2のピンによって上部が連結され、かつ前記本体のグリップ部に対し開閉動作するレバークリップ。

E. 前記第2のピンより下方において、前記レバークリップの上部に、第3のピンによって回動可能に取り付けられ、かつ前記本体のラック歯に係脱可能に噛合う係止こま。

以上A. B. C. D. Eよりなるを特徴とするパイプレンチ。

3. 考案の詳細な説明

(産業上の利用分野)

この考案はパイプレンチに関するものである。

(従来技術)

従来、パイプレンチは、JISB4606に規定されたものがある。これにおいては、下あごを有する本体に対し、丸ナットを所定方向へ回転操作することで、上あごを進退させる構造となっていた。

(考案が解決しようとする問題点)

上記した従来のものであるにおいては、本体の下あごと上あごとの間に管をくわえさせるときには、まず、管の外径より両あご間の間隔が適宜に大きくなるように、丸ナットを所定方向へ回転操作して、上あごを進退させ、その後、ふたたび、丸ナットを所定方向へ回転操作して、下あごに向けて上あごを前進させて、これら両あごによって管をくわえさせていた。このため、管のくわえ作業が厄介である問題点があった。

(問題を解決するための手段)

上記した従来の問題点を解決するために、この

考案では、

上端に上あご部を有し、下部をグリップ部とし、側縁にラック歯が形成された本体と、

前記本体の上あご部に対向する下あご部を上端に有し、かつ同本体に摺動可能に嵌挿された可動体と、

前記可動体の下部一侧に、第1のピンによって回動可能に連結された連結体と、

前記連結体の上部他側に、第2のピンによって上部が連結され、かつ前記本体のグリップ部に対し開閉動作するレバークリップと、

前記第2のピンより下方において、前記レバークリップの上部に、第3のピンによって回動可能に取り付けられ、かつ前記本体のラック歯に係脱可能に噛合う係止こまとによりパイプレンチを構成したものである。

(作用)

そして、この考案は、レバークリップの開き動作時には、該レバークリップが第2のピンを支点として開き動作し、本体のラック歯に対する係止

こまの噛合いが解除される一方、レバークリップの閉じ動作時には、本体のラック歯と係止こまとの噛合いによって該レバークリップが第3のピンを支点として閉じ動作し、この動作で連結体を介して可動体を前進させる作用をなすものもある。

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(実 施 例)

以下、この考案の一実施例を図面にしたがって説明する。

パイプレンチ1は、本体2、可動体4、連結体12、レバークリップ14、係止こま15を主体として構成されている。

上端に上あご部2aを有する本体2は、その胴部2bが所定長さの平帯状に形成され、胴部2bの下部をグリップ部2cとしている。さらに、本体2の胴部2bの側縁にはラック歯3が上下方向に形成されている。

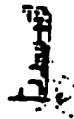
上記本体2の上あご部2aに対向する下あご4aを上端に有する可動体4は、その中心部の上下方向に、本体2の胴部2bに嵌合する揺動孔4bが貫設され、本体2の胴部2bに沿って揺動可能



に嵌挿されている。

また、この実施例では、本体2の上あご部2a下面には断面でのこ刃状のくわえ歯5が形成される一方、可動体4の下あご部4a上面には平坦なくわえ面6が形成されている。そして、本体2の上あご部2aと可動体4の下あご部4aとの間において、本体2の胴部2bには切換あご板7が回動可能に嵌挿されかつすべり止め用のばね8によって保持されている。この切換あご板7の上面には、本体2の上あご部2aのくわえ歯5に対向して噛合う断面でのこ刃状のくわえ歯9が形成され、同切換あご板7の下面には、可動体4の下あご部4aのくわえ面6に平行する平坦なくわえ面10が形成されている。

可動体4の下部一側には、第1のピン11によって連結体12の下部一側が回転可能に連結されている。この連結体12は、可動体4の一侧縁から他側縁に向けて跨がる二又状に形成されており、その上部の他側（二又の先端部）には第2のピン13によってレバークリップ14が、その上部に



において連結されている。

レバークリップ 14 の上部は、係止ごま 15 を収納するための収納部を備えた二又状に形成されており、この収納部には、本体 2 のラック歯 3 と係脱可能に噛合う係止歯 15 a を備えた係止ごま 15 が、第 2 ピン 13 より下方に位置する第 3 のピン 16 によって回動可能に取り付けられている。

すなわち、本体 2 に対するレバークリップ 14 の閉じ動作時には、第 3 図に示すように、本体 2 のラック歯 3 と係止ごま 15 の係止歯 15 a との噛合いによって該レバークリップ 14 が第 3 のピン 16 を支点として閉じ動作し、連結体 12 を介して可動体 4 を前進させる一方、レバークリップ 14 の開き動作時には、第 2 図に示すように、レバークリップ 14 が第 2 のピン 13 を支点として開き動作し、本体 2 のラック歯 3 に対する係止ごま 15 の噛合いが解除されるように、第 1、第 2、第 3 のピン 11、13、16 の配設位置が設定されている。

また、この実施例では、可動体 4 と連結体 12

との間には、該連結体12を第1のピン11を支点として第1図中矢印P方向へ付勢する戻しばね17が介装される一方、レバークリップ14の上端には可動体4の側縁に接觸可能に当接するストップ片14aが形成されている。

さらに、この実施例では、本体2の上あご部2aの側縁とこれに対向する可動体4の側縁には、ビスの頭部や線材を切断するための切断刃18、19が形成されている。

上記したように構成されるこの実施例のパイプレンチにおいて、レバークリップ14を開き動作すると、第2図に示すように、このレバークリップ14は、連結体12を、第1のピン11を支点としかつ戻しばね17の付勢力に抗して回動しつつ、第2のピン13を支点として開き動作し、本体2のラック歯3に対する係止こま15の噛合いが解除される。この状態のもとで、レバークリップ14によって可動体4を、本体2の胴部2bに拾って上下方向へ揺動させることで、本体2の上あご部2aに対し、可動体4の下あご部4aが進

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退する。このようにして、本体 2 の上あご部 2 a のくわえ歯 5 と、可動体 4 の下あご部 4 a のくわえ歯 5 上の切換あご板 7 のくわえ歯 9 との間隔が、管 P の外径に比し、適宜に大きくなるように、本体 2 の上あご部 2 a に対し、可動体 4 の下あご部 4 a を進退させる。そして、第 3 図に示すように、管 P の外周面に対し、本体 2 の上あご部 2 a のくわえ歯 5 と、可動体 4 の下あご部 4 a 側の切換あご板 7 のくわえ歯 9 とを対向させた後、レバークリップ 1 4 を、第 3 図中、鎖線に示すように閉じ動作することで、レバークリップ 1 4 は、第 3 のピン 1 6 を支点として閉じ動作する。すると、連結体 1 2 を介して可動体 4 が本体 2 の上あご部 2 a に向けて前進する。このため、本体 2 の上あご部 2 a のくわえ歯 5 と、切換あご板 7 のくわえ歯 9 との間に管 P が強固にくわえられる。

管 P を所定方向へ回わすときには、本体 2 のグリップ部 2 c とともに、レバークリップ 1 4 を閉じ方向へ把持しながら、管 P 回りに回転することで、管 P が所定方向へ回される。このとき、レバ



ーグリップ14の閉じ方向の把持力によって、可動体4が前進方向へ付勢される構造上、管Pの外周面に対し、本体2の上あご部2aのくわえ歯5及び切換あご板7のくわえ歯9のすべりが確実に防止され、管Pを安全に回すことができる。

また、六角ボルトBや六角ナット等を回すときには、本体2の上あご部2aのくわえ歯5に対し、切換あご板7のくわえ歯9が噛合う位置まで、同切換あご板7を移動し、可動体4の下あご部4aのくわえ面6と切換あご板7のくわえめ面10とを対向させ、その後は、前述の管Pを回すときとほぼ同様の操作によって、六角ボルトBや六角ナット等を回すことができる。(第4図参照)

また、この実施例では、本体2の上あご部2aの切断刃18と、可動体4の下あご部4aの切断刃19とで、ビスの頭部や線材等を切断することもできる。

なお、上記した実施例では、本体2の上あご部2aと、可動体4の下あご部4aとの間に、切換あご板7を介装したが、この切換あご板7は介装

することなく、可動体4の下あご部4a上面に、
のこ刃状のくわえ歯を形成してもよい。さらに、
本体2の上あご部2aの切断刃18と、可動体4
の下あご部4aの切断刃19は限定するものでは
ない。

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(考案の効果)

すなわち、この考案によれば、従来のパイプレン
チと異なり、本体の上あご部に対する可動体の
下あご部の進退動作は、レバークリップを開き動
作し、本体のラック歯に対する係止ごまの噛合い
を解除した状態のもので、本体に対し可動体を廻
動動作することで容易にかつ手早く行うことがで
きる。さらに、本体の上あご部と可動体の下あご
部との間に管をくわえさせるときには、レバーク
リップを閉じ動作して可動体を前進させることで、
容易にかつ手早く行うことができ、かつ管を強固
にくわえてこの管を安全に回すことができる効果
がある。

4. 図面の簡単な説明

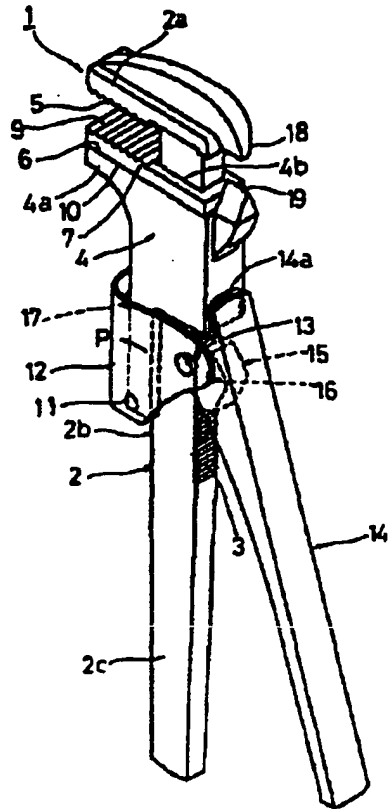
図面はこの考案の一実施例を示すもので、第1

図はパイプレンチを示す斜視図、第2図はレバークリップを開き動作して本体のラック歯に対する係止こまの噛合いを解除した状態を一部破断して示す側面図、第3図は本体の上あご部と可動体の下あご部側の切換あご板との間に管をくわえさせてこの管を所定方向へ回すときの状態を一部破断して示す側面図、第4図は六角ボルトや六角ナット等を回すときの状態を一部破断して示す側面図である。

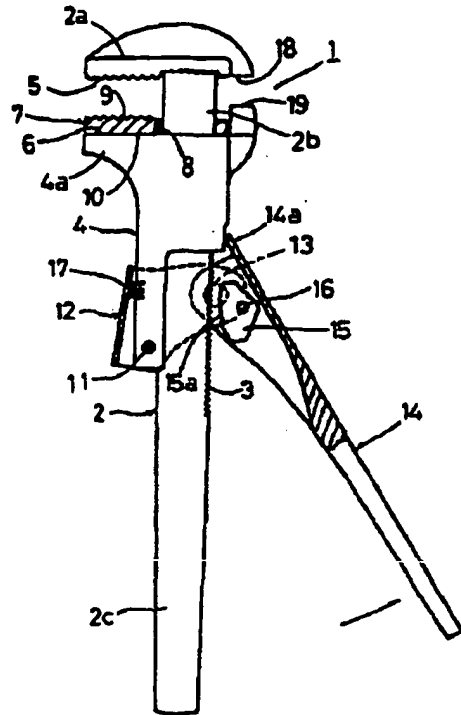
- | | |
|---------------|-------------|
| 1 … パイプレンチ | 2 … 本 体 |
| 2 a … 上あご部 | 3 … ラック歯 |
| 4 … 可動体 | 1 1 … 第1のピン |
| 1 2 … 連結体 | 1 3 … 第2のピン |
| 1 4 … レバークリップ | 1 5 … 係止こま |
| 1 6 … 第3のピン | |

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第 1 図



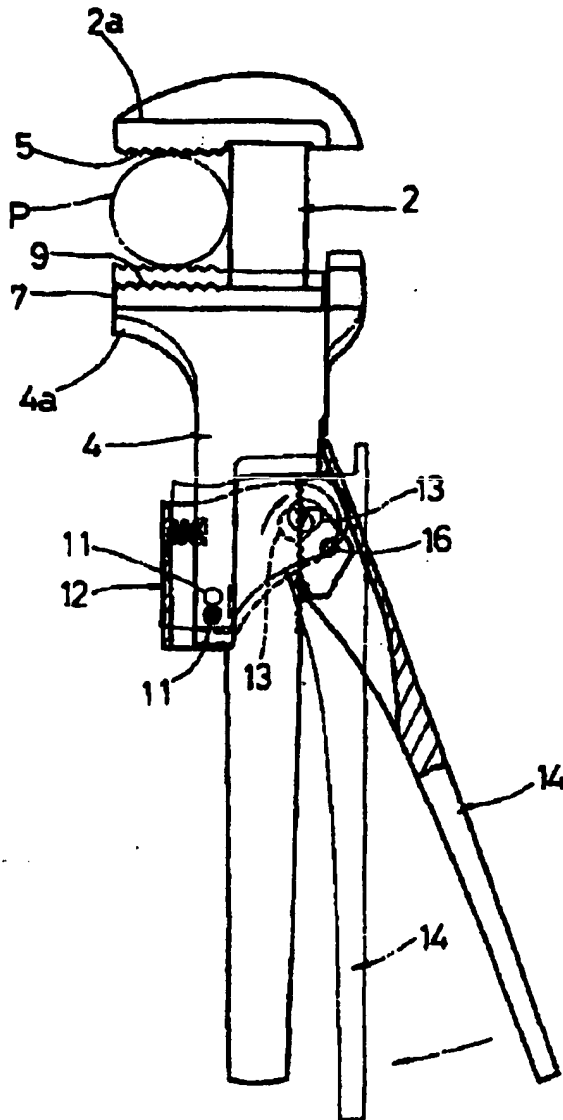
第 2 図



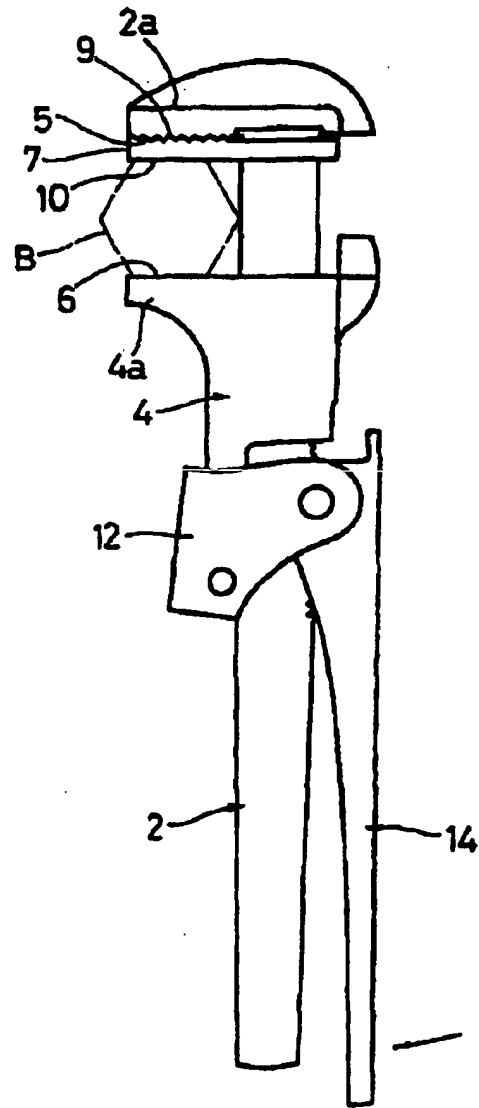
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第 3 図



第 4 図



(19) Japan Patent Office
(12) Utility Model Registration Bulletin (U)

(11) Public Patent Disclosure Bulletin No.: S61[1986]-16277
(43) Public Patent Disclosure Bulletin Date: January 30, 1986

(51) Int. Cl. ⁴	Identification Code	Internal File Nos.
B 25 B	13/50	7512-3C
	13/12	

Request for Examination: Requested
(__ pages total)

(54) Title of the device: Pipe wrench

(21) Application No.:	S59[1984]-98995
(22) Filing Date:	June 29, 1984

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(74) Agent:	Hidehiko Okada, Patent Attorney

[seal, illegible]

Specification

1. Title of the Device

Pipe wrench

2. Scope of the Utility Model Registration Claims

A. A main body, which has an upper jaw part at the upper end, uses a lower part as the grip part, and wherein a rack tooth has been formed on the side edge.

B. A moveable body, which has a lower jaw part that is opposed to the upper jaw part of the above-mentioned main body, and that has moreover been fit to and inserted in the same main body such that it can abrade.

C. A linking body, which is linked by a first pin, to one of the lower sides of the above-mentioned main body such that it can move circularly.

D. A lever grip, whose upper part is linked by a second pin to the other side of the upper part of the above-mentioned linking body, and which moreover performs an opening and closing operation relative to the grip part of the above-mentioned main body.

E. A latch piece that is attached by a third pin to the upper part of the above-mentioned lever grip in a position lower than the above-mentioned second pin such that it

moves circularly, and which moreover meshes with the rack tooth of the above-mentioned main body such that it engages and disengages.

A pipe wrench, characterized by the fact that it is composed of A, B, C, D and E above.

3. Detailed Description of the Device

(Field of Industrial Use)

This device relates to a pipe wrench.

(Prior Art)

To date, pipe wrenches have been stipulated in JIS B4606. In this standard, the pipe wrench is configured such that the upper jaw is caused to advance or retreat relative to the main body, which has a lower jaw, by rotating a round nut in the prescribed direction.

(Problems that the Device Attempts to Solve)

In a conventional pipe wrench like that described above, when a pipe is gripped between the upper jaw and the lower jaw of the main body, first of all, the round nut is rotated in the prescribed direction, and the upper jaw is caused to advance and retreat, so that the gap between the two jaws becomes larger than the outer diameter of the pipe as proper, after which, the round nut is again rotated in the prescribed direction, and the upper jaw is caused to advance towards the lower jaw, and the tube is gripped by both jaws. There is the problem that the operation of gripping the pipe is cumbersome.

(Means for Solving the Problems)

In order to solve the above-mentioned problems of the prior art, in this device, the pipe wrench is composed of:

- a main body, which has an upper jaw part at the upper end, uses a lower part as the grip part, and wherein a rack tooth has been formed on the side edge;

- a moveable body, which has a lower jaw part that is opposed to the upper jaw part of the above-mentioned main body, and that has moreover been fit to and inserted in the same main body such that it can abrade;

- a linking body, which is linked by a first pin to one of the lower sides of the above-mentioned main body such that it can move circularly;

- a lever grip, whose upper part is linked by a second pin to the other side of the upper part of the above-mentioned linking body, and which moreover performs an opening and closing operation relative to the grip part of the above-mentioned main body; and

- a latch piece that is attached by a third pin to the upper part of the above-mentioned lever grip in a lower position than the above-mentioned second pin such that it moves circularly, and which moreover meshes with the rack tooth of the above-mentioned main body such that it engages and disengages.

(Action)

This device performs the following action: During the opening operation of the lever grip, said lever grip performs an opening operation with the second pin as the fulcrum, and the meshing of the latch piece to the rack tooth of the main body is released, whereas during the closing operation of the lever grip, said lever grip performs a closing operation with the third pin as the fulcrum due to the meshing of the rack tooth and the latch piece of the main body, and due to this action, the movable body is caused to advance through the linking body.

(Embodiment)

An explanation is provided below of one embodiment of this device in accordance with the diagrams.

The pipe wrench 1 is composed of a main body 2, movable body 4, linking body 12, lever grip 14 and latch piece 15 as main parts

The main body 2 has an upper jaw part 2a on the upper end, and its stem part 2b is formed in a flat belt shape in a prescribed length, and the lower part of the stem part 2b is referred as a grip part 2c. Moreover, a rack tooth 3 has been formed in the up-down direction on the side edge of the stem part 2b of the main body 2.

As for the movable body 4, which has a lower jaw 4a that is opposed to the upper jaw part 2a of the above-mentioned main body 2 on the upper end, an abrading hole 4b that fits to the stem part 2b of the main body 2 has been provided, such that it passes through, in the up-down direction of the central part of the moveable body, and the movable body 4 is fitted to and inserted such that it can abrade along the stem part 2b of the main body.

In addition, in this embodiment, a gripping tooth 5 that is saw blade shaped in section has been formed on the lower surface of the upper jaw part 2a of the main body 2, while a flat gripping surface 6 has been formed on the upper surface of the lower jaw part 4a of the movable body 4. Then, between the upper jaw part 2a of the main body 2 and the lower jaw part 4a of the movable body 4, a switching jaw plate 7 has been fitted to and inserted in the stem part 2b of the main body 2 such that it can abrade, and is moreover held in place by the spring 8 used for slip resistance. A gripping tooth 9, which is saw blade shaped in section, and which meshes in opposition to the gripping tooth 5 of the upper jaw part 2a of the main body 2, has been formed on the upper surface of this switching jaw plate 7, and a flat gripping surface 10 that is parallel to the gripping surface 6 of the lower jaw part 4a of the movable body 4 has been formed on the lower surface of the same switching jaw plate 7.

One side of the lower part of the linking body 12 has been linked by the first pin 11, such that it can rotate, to one side of the lower part of the movable body 4. This linking body 12 has been formed in a two-pronged shape that stretches from one side edge of the movable body 4 towards the other side edge, and a lever grip 14 has been linked to the other edge of the upper part thereof (the two-pronged tip part) by a second pin 13.

The upper part of the lever grip 14 has been formed in a two-pronged shape that is equipped with a housing part for housing the latch piece 15, and the latch piece 15, which is equipped with a latch tooth 15a that meshes with the rack tooth 3 of the main body 2 such that it can latch and detach, has been installed, such that it can move circularly, by a third pin 16 that is positioned lower than the second pin 13, in this housing part.

In other words, during the closing operation of the lever grip 14 relative to the main body 2, as shown in Figure 3, said lever grip 14 performs a closing operation with the third pin 16 as the fulcrum by the meshing of the rack tooth 3 of the main body 2 and the latch tooth 15a of the latch piece 15, and the movable body 4 is caused to advance through the linking body 12, whereas during the opening operation of the lever grip 14, as shown in Figure 2, the lever grip 14 performs an opening operation with the second pin 13 as the fulcrum and the positions in which the first, second and third pins 11, 13

and 16 have been set so that the meshing of the latch piece 15 to the rack tooth 3 of the main body 2 is released.

In addition, in this embodiment, a return spring 17 that impels said linking body 12 in the P direction indicated by the arrow in Figure 1 has been interposed between the movable body 4 and the linking body 12 with the first pin 11 as the fulcrum, whereas a stopper piece 14a that is in direct contact such that it contacts and separates from the side edge of the movable body 4 has been formed on the upper end of the lever grip 14.

Moreover, in this embodiment, cutting blades 18 and 19 for cutting the head part of a screw or wire material have been formed on the side edge of the upper jaw part 2a of the main body 2 and the side edge of the movable body 4 that is opposed to the former.

In a pipe wrench with the composition as described above, when the opening operation is performed by the lever grip 14, as shown in Figure 2, this lever grip 14 performs an opening operation with the second pin 13 as the fulcrum while the linking body 12 is moved circularly in opposition to the impetus of the return spring 17 with the first pin 11 as the fulcrum thereof, and the meshing of the latch piece 15 to the rack tooth 13 of the main body 2 is released. Based on this state, if the movable body 4 is caused to abrade in an up-down direction along the stem part 2b of the main body 2 by the lever grip 14, the lower jaw part 4a of the movable body 4 advances and retreats relative to the upper jaw part 2a of the main body 2. In this manner, the lower jaw part 4a of the movable body 4 is caused to advance and retreat relative to the upper jaw part of the main body 2, such that the gap between the gripping tooth 5 of the upper jaw part 2a of the main body 2 and the gripping tooth 9 of the switching jaw plate 7 on the gripping surface 5 of the lower jaw part 4a of the movable body 4 becomes larger as appropriate compared to the outer diameter the pipe P. Then, as shown in Figure 3, if after the gripping tooth 5 of the upper jaw part 2a of the main body 2 and the gripping tooth 9 of the switch jaw plate 7 on the side of the lower jaw part 4a of the movable body 4 are opposed to the outer peripheral surface of the pipe P, a closing operation is performed on the lever grip 14 as shown by the dashed line in Figure 3, the lever grip 14 performs a closing operation with the third pin 16 as the fulcrum. When this is done, the movable body 4 advances towards the upper jaw part 2a of the main body 2 through the linking body 12. Owing to this, the pipe P is gripped strongly between the gripping tooth 5 of the upper jaw part 2a of the main body 2 and the gripping tooth 9 of the switching jaw plate 7.

When turning the pipe P in the prescribed direction, the pipe P is turned in the prescribed direction by moving the lever grip 14 circularly around the pipe P while holding the lever grip in the closing direction, along with the grip part 2c of the main body 2. At this time, based on the configuration whereby the moving body 4 is impelled in an advancing direction by the holding force in the closing direction of the lever grip 14, the slippage of the gripping tooth 5 of the upper jaw part 2a of the main body 2 and the gripping tooth 9 of the switching jaw plate 7 relative to the outer peripheral surface of the pipe P is reliably prevented, and it is possible to turn the pipe safely.

In addition, when turning a hexagonal bolt B or hexagonal nut, the switching jaw plate 7 is moved to the position where the gripping tooth 9 of the switching jaw plate 7 meshes with the gripping tooth 5 of the upper jaw part 2a of the main body 2, and the gripping surface 6 of the lower jaw body 4a of the movable body 4 and the gripping surface 10 of the switching jaw plate 7 are opposed, after which, the hexagonal bolt B or

hexagonal nut, etc. can be turned by more or less the same operation as when the above-described pipe P is turned (See Figure 4).

In addition, in this embodiment, it is also possible to cut the head part of a screw or wire material with the cutting blade 18 of the upper jaw part 2a of the main body 2 and the cutting blade 19 of the lower jaw part 4a of the movable body 4.

In the above-mentioned embodiment, a switching jaw plate 7 has been interposed between the upper jaw part 2a of the main body 2 and the lower jaw part 4a of the movable body 4, but a saw blade shaped gripping tooth may also be formed on the upper surface of the lower jaw part 4a of the movable body 4, without the switching jaw plate being interposing. Moreover, the cutting blade 18 of the upper jaw part 2a of the main body 2 and the cutting blade 19 of the lower jaw part 4a of the movable body 4 are not things that limit this device.

(Effects of the Device)

In other words, according to this device, unlike conventional pipe wrenches, the advancing and retreating operation of the lower jaw part of the movable body relative to the upper jaw part of the main body involves a state wherein an opening operation is performed on the lever grip, and the meshing of the latch piece to the rack tooth of the main body is released, and thus it is possible to carry this out easily and quickly by performing an abrading operation on the movable body relative to the main body. Moreover, when having a pipe gripped between the upper jaw part of the main body and the lower jaw part of the movable body, it is possible to carry this out easily and quickly by performing a closing operation on the lever grip and causing the movable body to advance, and there is moreover the effect that the pipe is gripped firmly and it is possible to turn this pipe safely.

4. Brief Description of the Diagrams

The diagrams show one embodiment of this device. Figure 1 is an oblique view that shows the pipe wrench. Figure 2 is a lateral view with one portion broken off to show a state in which the lever grip is open and operating, and the meshing of the latch piece to the rack tooth of the main body is released. Figure 3 is a lateral view with one portion broken off to show the state when a pipe has been gripped between the upper jaw of the main body and the switching jaw plate of the lower jaw part side of the movable body, and this pipe is turned to the prescribed direction. Figure 4 is a lateral view with one portion broken off to show the state when a hexagonal bolt or hexagonal nut, etc. is turned.

- 1... Pipe wrench
- 2... Main body
- 2a... Upper jaw part
- 3... Rack tooth
- 4... Movable body
- 11... First pin
- 12... Linking body
- 13... Second pin
- 14... Lever grip
- 15... Latch piece
- 16... Third pin

Applicant:

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Agent:

Hidehiko Okada, Patent Attorney

Figure 1

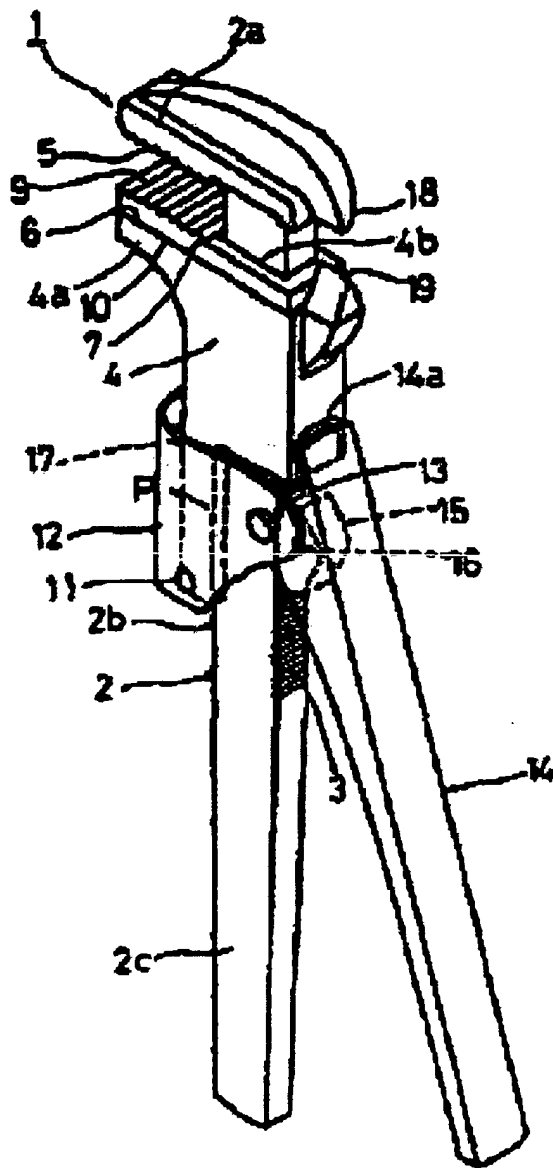
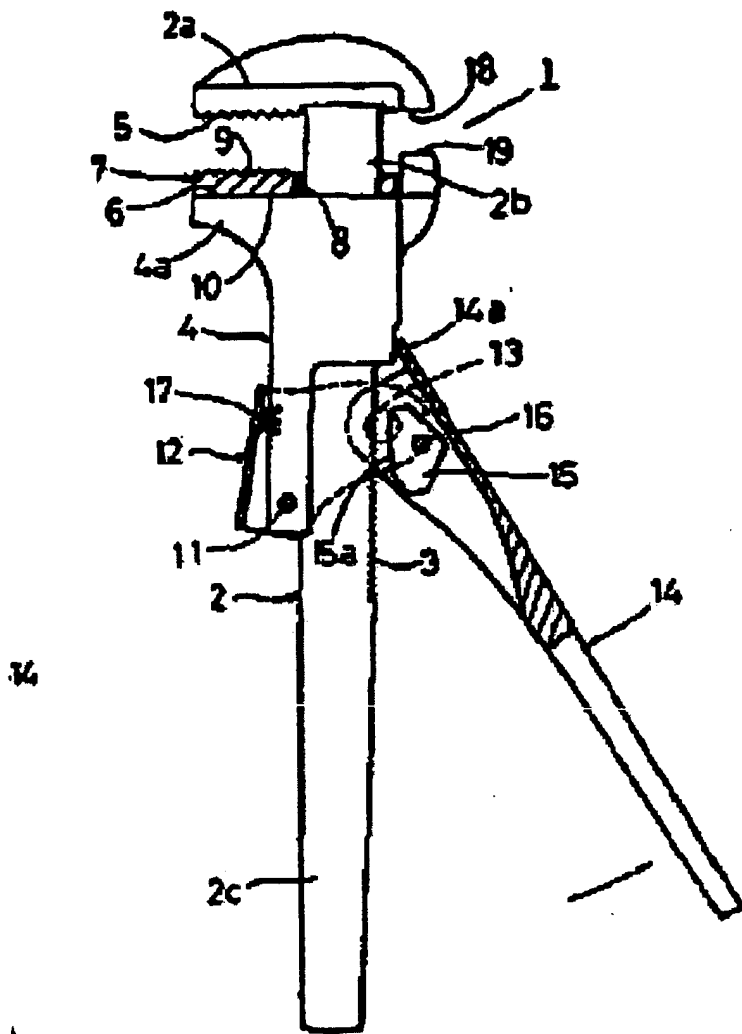


Figure 2



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No subsequent diagrams

Figure 3

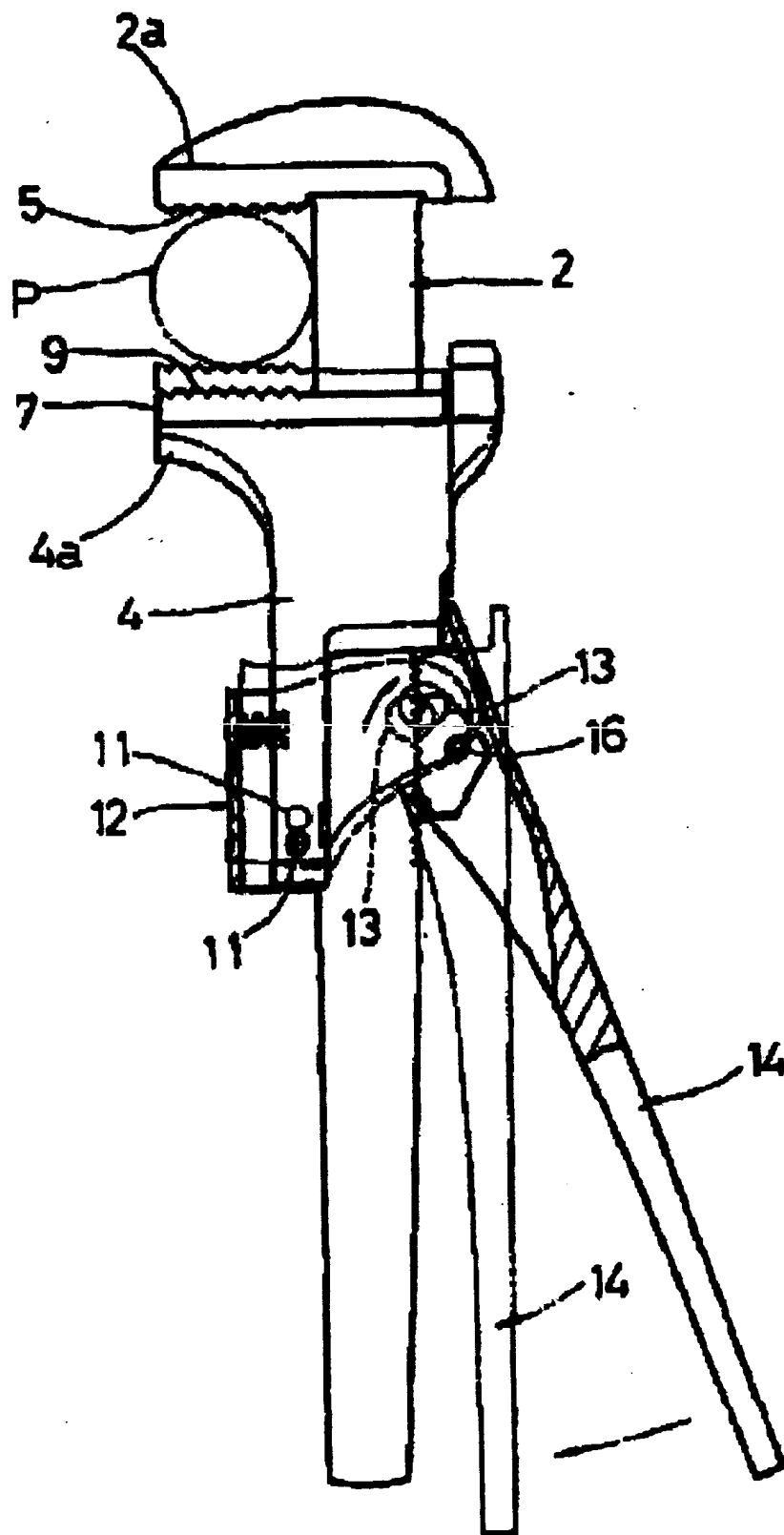
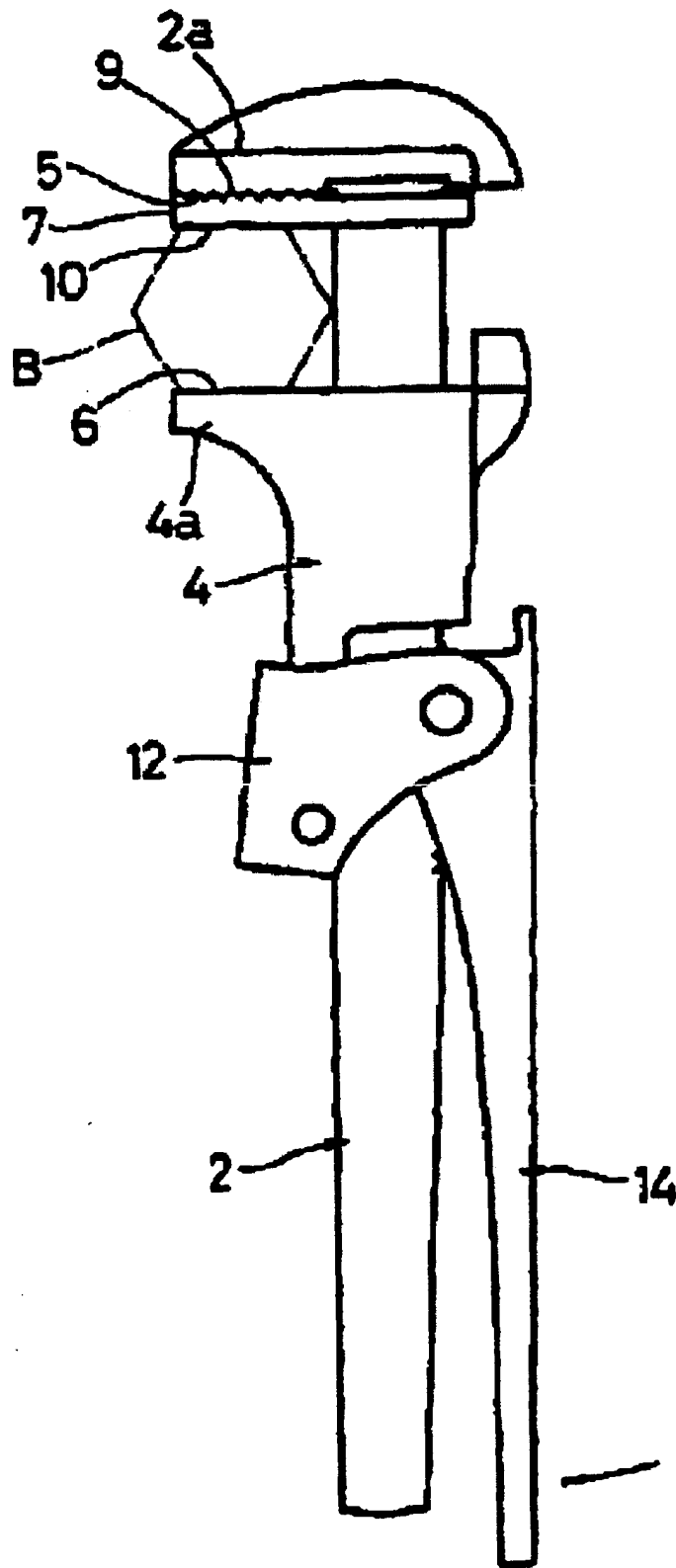


Figure 4



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